

A New Genus of Atropidæ.

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The Atropidæ were originally set apart from the Psocidæ as possessing neither wings or ocelli, but in the three genera *Psoquilla* Hagen, *Dorypteryx* Aaron, *Psocinella* Bangs (*Psocatropos* Ribaga) we find in all of them one pair of rudimentary venated wings. To these I may add a fifth genus with fully developed ocelli and possessing two pairs of venated wings: we have then, as the generic term implies, an Atropid with ocelli.

OCCELLATARIA gen. nov.

Fully developed ocelli. Head oblong. Emarginate on the vertex. Clypeus small. Lips prominent. Eyes not prominent, composed of small ocelli. Antennæ filiform longer than body, 18 to 30 articulations beyond two stronger basilar joints. Palpi four-jointed, the last joint tapered to a point at apex. Maxillæ tridentate, meso- and metathorax free. Two pairs of rudimentary venated wings. Femora not dilated. Tibiæ half as thick as femora, and longer than femora. Tarsi three jointed, the first joint longest, the second shortest. Claws bidentate. Body very scantily clothed with hair.

This genus differs from all the other Atropidæ in that it has not a prominent clypeus, and its head is more oblong than that of other genera and is more prominent between the eyes, and is emarginate on the vertex. The ocelli contrast this genus most strikingly from other described Atropidæ. A further difference in structure is the two pairs of venated wings found in *Ocellataria*, which does not occur in any of the other genera.

Ocellataria gravinympha sp. nov.

Length (♂) 1.7-2 mm.; (♀) 2.-2.3 mm. (Fig. I.)*

The ground color of the body is of a faint yellowish-white covered by a fine granular layer of bluish grey, most profuse on the ventral surface of the abdomen and on the legs, which are darker than the other parts of the body, with the exception of the borders and veins of the wings, which, like the eyes, are black. The head appears lighter in color than the other parts of the body; it is darker from the line

*This figure without description appeared in an article on "The Possible Dissemination of Tubercle Bacilli by Insects," N. Y. Med. Journal, Vol. lxxxiv, No. 18, p. 884, November 3, 1906. This paper is an example of the economic importance of the Psocidæ.

of the eyes and ocelli back and lighter from that line to the mouth. A few white hairs clothe the head, clypeus and lips, and are more numerous over the latter. Maxillary palpi white. Antennæ white. A fox-red band extends forward from the eye and becomes obsolete at the root of the antennæ. A light fusion of the same color is found surrounding the anterior ocellus, extending towards the clypeus. The ocelli are mounted in three beautiful rounded dark cherry-red bodies.

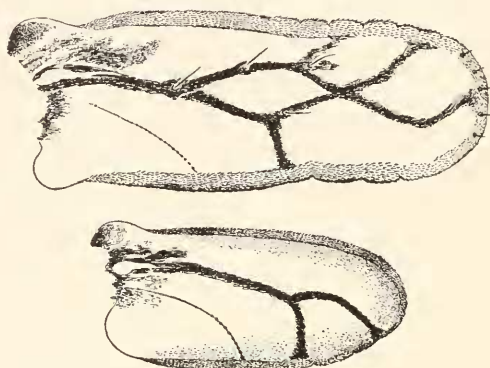


Fig. 1.—1st and 2nd wings of *Ocellataria gravinympha*.

The prothorax marked on the side by a fox-red stripe. Superior surface of femora darker than the inferior. The mesothorax is light reddish-brown on the dorsum, and towards the anterior border contains a light median spot. Under the wings it is white. The metathorax is marked the same on the dorsum. The wings are of a transparent glassy white structure. The margins and veins black. The first segment of the abdomen is white; the second, third, fourth, fifth and sixth are bluish-grey on the dorsal surface, the seventh is lighter in color, the eighth and ninth or apical retractive portion of the abdomen is dark. To the unaided eye the general color effect of the insect is that of a dark greyish spotted body with a faint yellowish head. With the hand glass, appear the beautiful red mounted ocelli and black eyes and yellow head, dark thorax and wings, the white first and seventh abdominal segments with the rest bluish grey, which renders the insect of a spotted appearance.

The first pair of femora are slightly dilated and are larger than those of the middle or hind pair. The front tibiæ are slightly longer than the femora; the tarsi nearly as long as the tibiæ, the first tarsal joint is longer than the combined length of the second and third. The middle pair of tibiæ are about one-fifth longer than the femora; the tibiæ are one-fourth longer than the tarsi; the first tarsal joint one and one-half times longer than the second and third joints

combined. The tibiæ of the hind pair are nearly twice the length of the femora; the tarsi two and one-half times longer than the tibiæ; the first tarsal joint twice as long as the second and third. The legs are sparsely clothed with short hair. The first and second joints of the tarsi are armed with two little spurs on the under side of their apices. Claws, bidentate. Two pairs of venated hyaline wings; the first pair

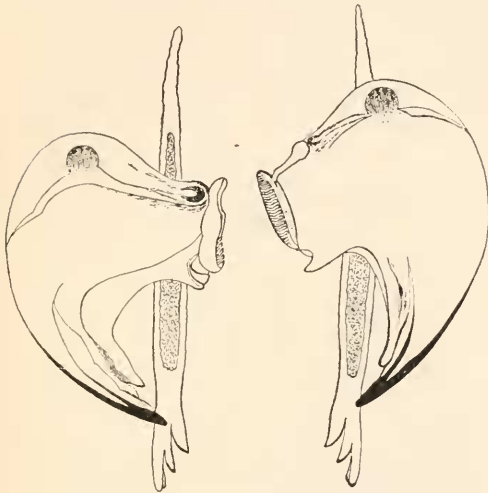


Fig. 2.—Mandibles and maxillæ of *O. gravinympha*.

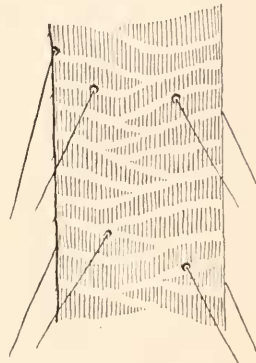


Fig. 3.—Portion of posterior tibia showing arrangement of epiderm.

three times as long as wide, and reach to, or extend half way over the first segment of the abdomen. The attachment to the mesothorax extends over nearly the whole width of the wing at its base. It is vested by a heavy aculeate border and veins. The large single vein takes its origin about the middle of the base, then makes a slight turn towards the anal side, then to the costal side, when it bifurcates to form a lozenge-shaped discoidal cell about the middle of the wing. On the anal side it sends off a branch nearly at right angles which extends to the border. On the costal side further towards the apex another



Fig. 4.—Egg of *O. gravinympha*, much enlarged, on left. Apical 3rd of 1st tarsus, on right.

branch is sent out, very heavy at its origin and very light for two-thirds of the distance to the margin. At the apical end of the discoidal cell two branches are given off, one extending to the costal, and the other to the anal, side of the apex of the wing. On the border of the wing on each side occur from 4 to 5 infundibulæ, each one of which is clothed with a small seta. A few larger setæ are scattered over the

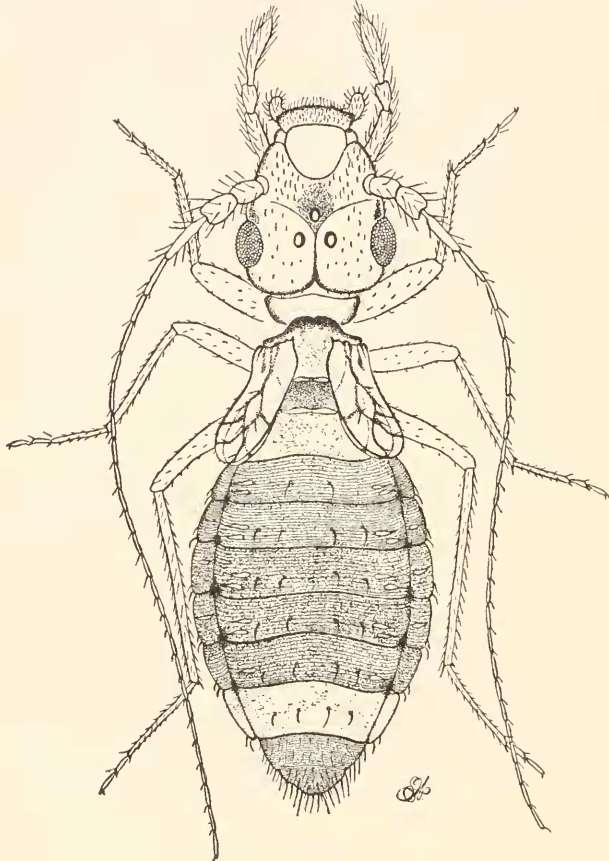


Fig. 5.—*Ocelloria gravinympha* (♀).

veins. The wing presents an undulating surface; the attachment at base is high, then it descends and rises again at the basilar third at about the bifurcation of the vein, which is the highest point of the wave, then it curves downward through middle of discoidal cell, takes a gradual rise, and comes to a higher point at the apical end of discoidal cell, after which it runs flat to the apex. The pos-

terior wings are shorter and narrower than the anterior pair, the costal margin nearly straight. Apex obtuse. A simple vein extends from the base obliquely towards the anal side and bifurcates, one simple branch extending to the apical margin on anal side, the other to anal border beyond the middle, forming a triangular cellule.

Habitat.—Lancaster, Pa. It is an indoor species.

Types.—Two males and one female, No. 46,844, U. S. N. M.

In its movements it is unlike many other Psocids, since it generally walks about slowly and runs only when disturbed. It has a peculiar lateral or duck-like motion of the head when walking which is not possessed by any other species known to me in this family. It does not jump. It does not spin. I have found this species to remain in a cellar, where they were placed in several boxes of bones, and to breed in the original boxes for three seasons. They were also found on wine jugs, barrels and boxes in the same cellar after this introduction. This is the only instance known to me where Atropidæ remained where dampness existed. I have noted this form active on April 28, and it is probably the first Psocid to resume activity in the spring. One of the most remarkable features in the life history of this species, in some instances, is the early development and deposition of eggs which occurs already in stage III, the next to last moult. When these gravid female nymphs are seen running among the males and females, the picture is so striking that they seem to be a widely different species, for they are much larger than even their nongravid mothers, and are of a bright yellow color.

The eggs are elliptical in shape. The adult usually deposits from five to seven and glues them fast in cracks or other favorable places. They hatch in from eight to ten days, according to conditions.

The nymphs moult apparently three times. A great divergence in the development occurs between male and female, since the former is born blind and the latter has from three to five ocelli as it issues from the ovum. These blind males have no trace of any development toward the formation of eyes in stage I, and the eye does not develop until late in nymphal life; they frequently have but two or three ocelli by the time the latter part of stage III is reached; while at the same time the

ocelli—between the eyes—become discernible through the appearance of glassy facets, but do not have a fully developed base. The antennæ, at birth, have six or seven articulations aside from the two larger constituting the base. The wings are also much slower in developing than those of the female. The antennæ after the first moult—stage II—are composed of from twelve to fifteen articulations beyond the base. Small wingpads now make their appearance. The males are smaller and receive the peculiar color marks of the abdomen, which is not the case with the female until the last moult setting forth the adult form.

The lack of development of the eyes in the male nymphs is accompanied by remarkable development of some other parts, e. g. some specimens are found with the antennæ having even more articulations than are found in the imago, while the eye is rudimentary. The nymphs of both sexes in stage III have two-jointed tarsi and from nineteen to twenty-three articulations in the antennæ. The female nymphs in this stage are of a beautiful faint yellow, with the head of an amber tint. The thorax is of a light reddish-brown color. The ocelli are plainly marked and the eyes are not fully developed. The antennæ contain sixteen to twenty-four articulations. The tarsi two-jointed. This latter structural difference, and the short, broad, and uniformly bright yellow-colored abdomen of the gravid female nymph contrasts it readily from the regular female imago of the same species, which is marked as shown in Fig. 1.

Five large gravid female nymphs taken September 5, 1905, and put in a bottle, were soon thereafter found to have deposited three eggs, but they did not hatch. In these gravid nymphs the tarsi were two-jointed. Antennæ from sixteen to twenty-four articulations beyond the basilar portion. Wings large but no venation. By September 8th they were moulted and had the color of the adult female as per Fig. 1.

These facts of early oval development occur undoubtedly without the intervention of male and female, and indicate that we have the data of parthenogenesis exemplified in this species.